United States Air Force

Air Force Aerial Targets

November 2005
NDIA Symposium & Exhibition
Monterey, CA

Lt Col Shaun House

Director, Aerial Targets Systems Squadron

Eglin AFB, FL

Overall Classification of This Briefing is Unclassified

Overview

SASG/RT

- Background
- Product Groups
  - Full-scale Aerial Targets
  - Subscale Aerial Targets
- AF Targets Future

Aerial Target Systems

SASG/RT

- **Airborne aircraft designed to replicate threat aircraft systems**
  - **Enemy fighter aircraft**
  - **Enemy cruise missiles**
- **Required per Public Law, Title 10, US Code 2366**
  - **New / improved weapon systems are required to demonstrate lethality prior to production**
  - **Also required for USAF air-to-air weapon system evaluation program (WSEP)**
- **Used to validate performance of DOD ground-air and air-air missile/aircraft systems**
  - **Must emulate performance, signatures, countermeasures (infrared and electronic attack)**

Background

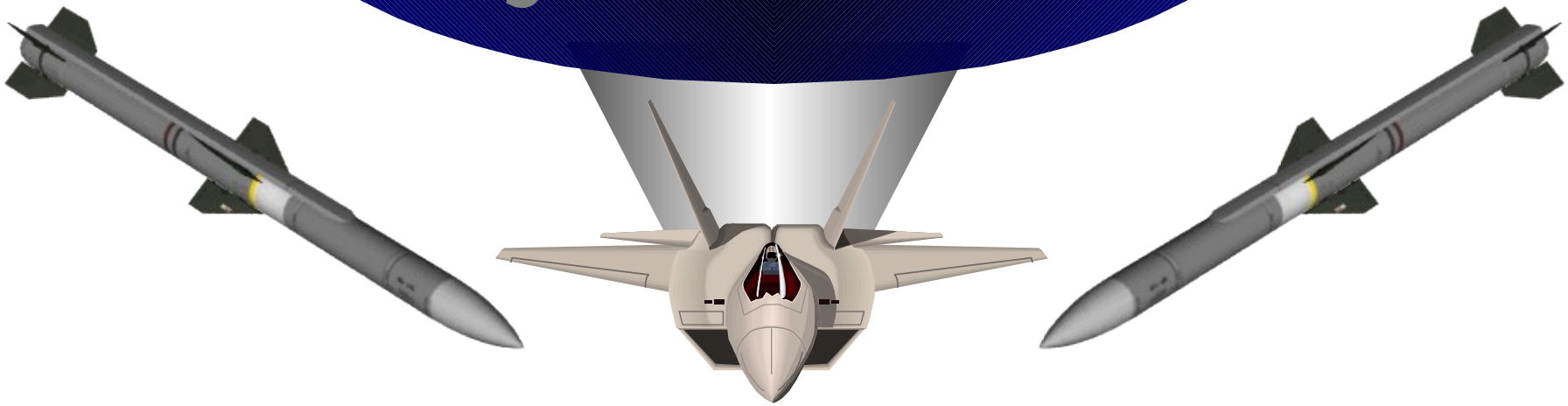
SASG/RT

- The entire Air Force Aerial Targets team provides
  - Realistic threat-representative aircraft “presentations”
    - The target itself
    - The ability to control the target in the air
    - Launch, recovery, maintenance, repair
- The Aerial Targets Squadron at Eglin AFB
  - Develops, procures and sustains aerial targets and related systems

Who Are Our Customers?

SASG/RT

Missile Development Programs & Testers



SHOOTERS • OPERATORS • MAINTAINERS

Aerial Targets Organizations

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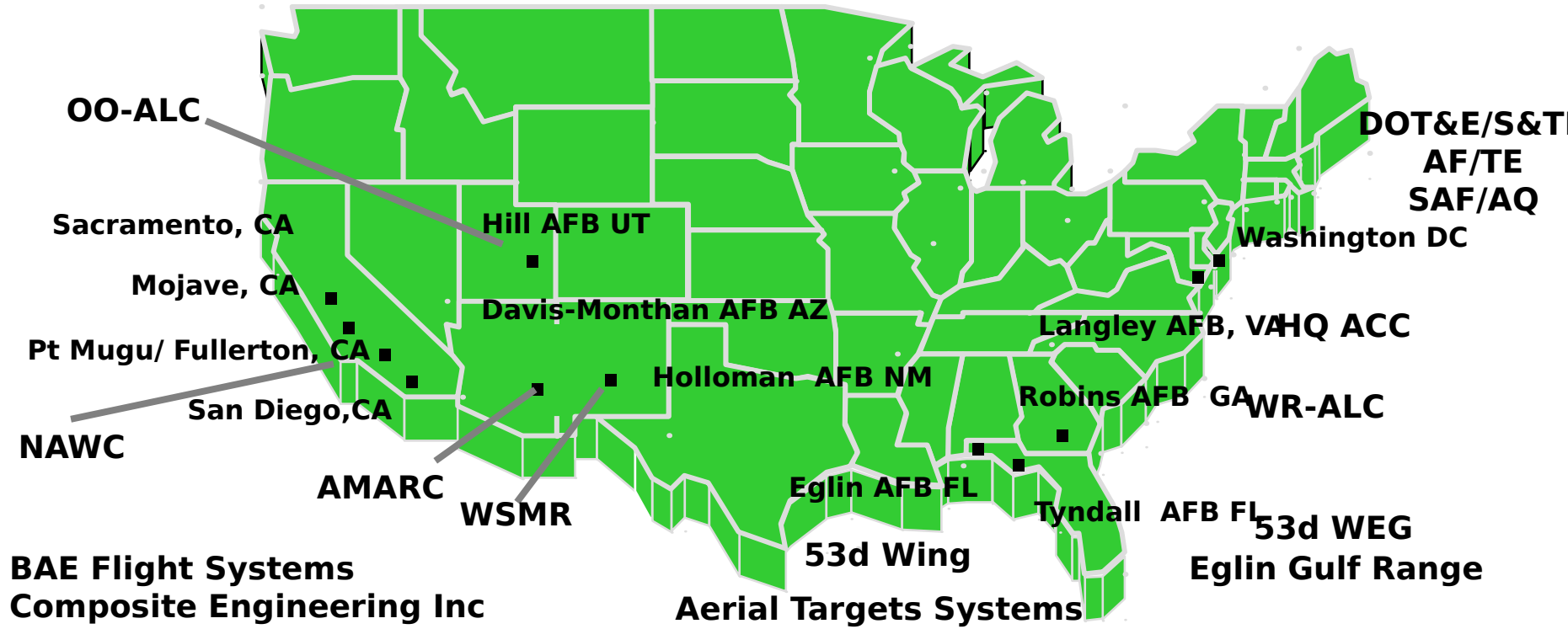
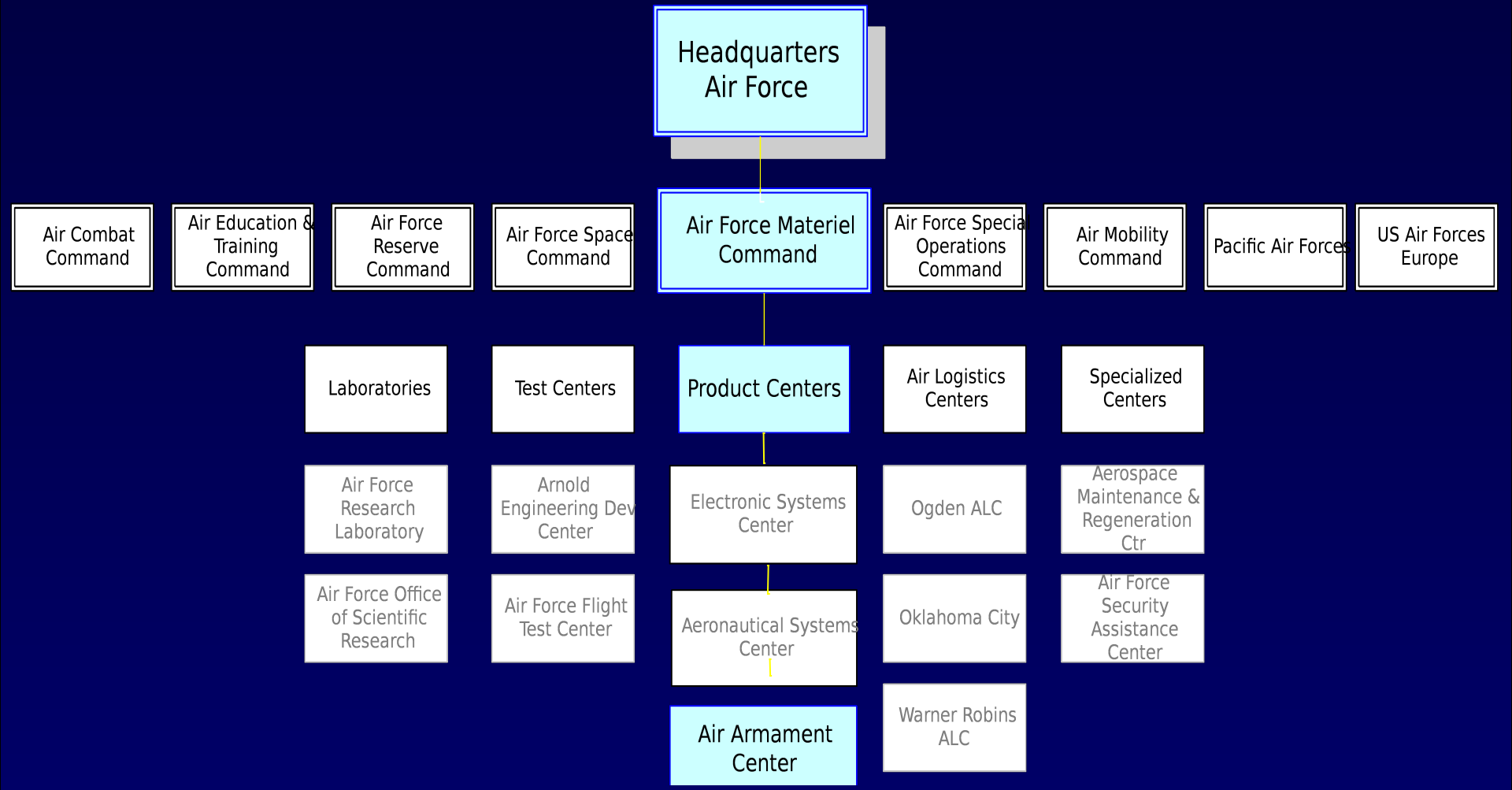


BAE Flight Systems
Composite Engineering Inc
Northrop Grumman Ryan Aero
Lockheed Martin
Cartwright Electronics
MicroSystems
Microturbo
QRC

Where We Fit In

SASG/RT



SASG/RT Organization

Contracting (RTK)
Leanne Green GS-12
Karen Wagner GS-12
Crystal Judd GS-11
Maj Kokocha

Aerial Targets Squadron (RT)
Commander Lt Col Shaun House
Director of Operations Maj Steve Lundquist
TAMS George Dollson, Tiffany Haertelt

Finance (RTF)
Jo-An Williams GS-12
Larry Newhouse TAMS

Technical Director Ed Stricklin GS-14

Logistics Support Lead Vacant

Full-Scale and Support Systems IPT (RTD)
Kenneth Hislop GS-13

Capt Mowry (PM)
Glenn Ragsdale (EN) GS-13*
Lynn Herzig (EN) GS-13
Tiffany Bray (LG) GS-11
ATIMS
Kathy Fuszner (EN) GS-12
Susan Brock TEAS
Donna Buttermore TEAS
Amy Simoneaux TEAS
Steve Jenkins TEAS
Lane Clarke TEAS

TEAS
Brent Smith
Eddie Sutton
Dick Cook
Gene McCormack
Brad Ludwig
TAMS
Walt Guthrie
Steve Baca
Stan Zalace
Lisa Gamon
Harry Brannan
Billy Ondrusek
Pete Starkis
Joe Beakey

Sub-Scale IPT (RTS)
Vicki Waterman GS-13

Capt Morris (PM)
Lt Eric Dekelbaum (EN)
David Walthall (EN) GS-13
Jim Robison (EN) GS-12
Linda Wong (LG) GS-12
TEAS
Scott Dunkle
Maurice Hutton
Tom Moore

TAMS
Tom Brocato
John Nash
Rich Girardin
Paul McShane
Greg McKeown

*Navy

UNMANNED UNARMED UNAIRBAIR
AERIAL TARGETS
AERIAL TARGETS SYSTEMS
USAF
TD
53WEG

Overview

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  - Full-scale Aerial Targets
  - Subscale Aerial Targets
- AF Targets Future

QF-4 Full-Scale Aerial Target (FSAT)

SASG/RT

Program Manager: Capt Mike Mowry (USAF)

Systems Engineer: Mr. Glenn Ragsdale (USN)

QF-4 Full Scale Aerial Target

SASG/RT

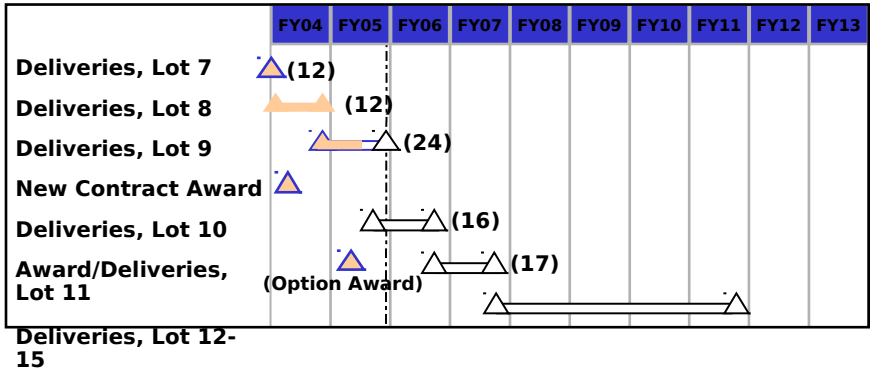
Key Features

- Conversion of F-4 E/G and RF-4C aircraft into full scale aerial targets
- Satisfies Title 10 “Live Fire/Lethality” development & operational test reqmts
- Operates via automatic flight control system, positive ground & airborne control, & flight termination system
- Program in full production; prime contractor is BAE Systems, Mojave, CA

Key Enabler for Multiple Strategies

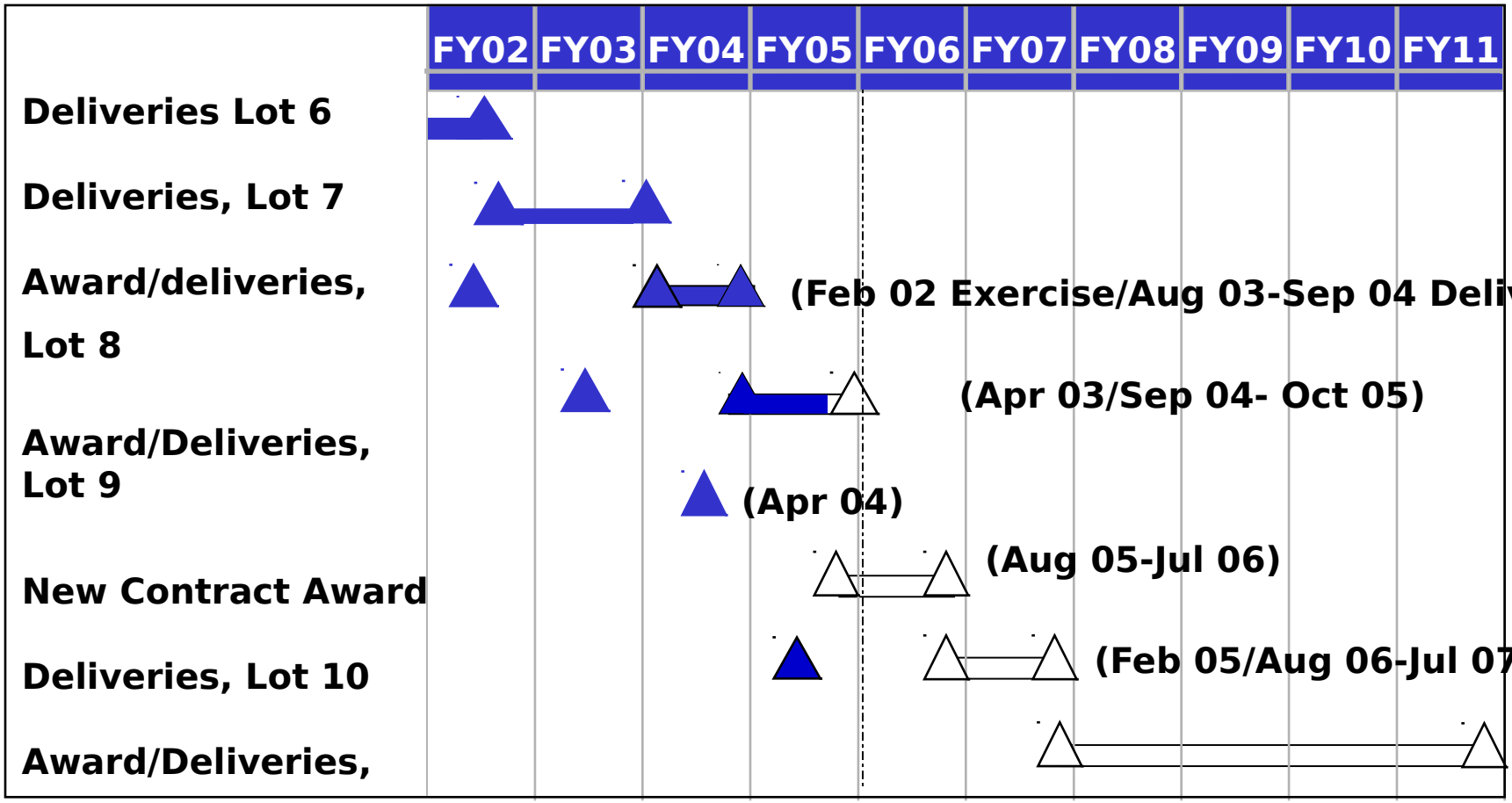
- Assures warfighters that weapon systems perform adequately against threat-representative targets
  -- Satisfies public law Title 10 “Live Fire/Lethality” developmental/operational test requirements
  -- Validates operational missile/weapon system effectiveness, fighter OFP updates, etc.

Program Schedule



QF-4 Program Schedule

SASG/RT



A Year of Challenges

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- Digging much farther into AMARC inventory
  - Now projecting 15 lots against original rqmt for 9 lots
  - Dwindling numbers & quality of F-4s at AMARC
  - Regeneration costs increasing each year
  - Parts supply/repair issues
- Discovered asbestos in some jets
  - Forced unexpected cleanup effort
  - Avoided grounding of fleet
- Air worthiness certification

The Future of QF-4

SASG/RT

- Project last QF-4 delivery in FY11
  - Inventory exhausted in FY13
- Final 3 lots comprised populated with RF-4Cs
  - Expect significant problems regenerating & maintaining
  - Cannibalizing jets at 3:1 ratio
  - AF working to restart limited parts supply/repair capability
  - Extremely limited options to extend beyond lot 15
- Anticipating gap in full-scale capability
  - Replacement target (AST) not available until FY14/15 at the earliest
  - AF Exploring options to close the gap

Program Schedule
(Based FYDP Purchase/20 Killed/Yr)

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FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12 FY13 FY14 FY15 FY16 FY17 FY18 FY19 FY20 FY21

QF-4 E/G/RF

F-4E F-4E F-4E F-4E RF-4C RF-4C RF-4C

H

AST

Begin AST Study

B Contract Award

C Prod Decision

1st Del

Requirement Definition/ Contract Prep

Development (SDD)

Production

Operation

Milestone

Program Events

Air Superiority Target (AST)

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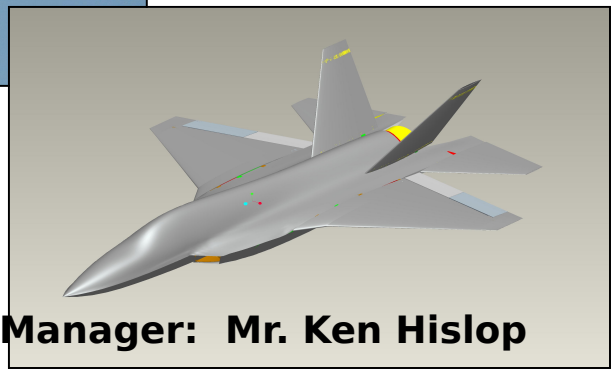

Program Manager: Mr. Ken Hislop

Capability Description

KPP	Threshold	Objective
- Airspeed/15kft		
-Minimum	250KCAS	200 KCAS
-Maximum	1.7M	1.85M
- Formation Flight	2,3,4 Targets	
- Payload Carriage	2,500lbs	5000lbs
- Flight Termination	Auto/Manual	
- Interoperability	Satisfy all critical IERS	

System Information

- Follow on Full Scale Target Program
- Planning for 2-Phase analysis of alternatives
- Phase 1: Update previous studies, get program started in FY08
- Phase 2 study to look at long-term solution
  - -- Supersonic, high-G, heavy payload, with 2, 3, or 4 target formation

Schedule

EVENT	FY06	FY07	FY08	FY09
Analysis of Alternatives				
CDD				
Program Documents				
Contract Award				

AST Status

- **Abbreviated AoA in FY06**
  - **Assess intel/threat, CONOPS, existing airframes, clean sheet designs, suitability, cost**
  - **Prepare Capability Development Document (CDD)**
- **Currently preparing FY08 POM submission**
- **Anticipate industry days & RFP in FY07**
- **Contract award in FY08**

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AFSAT – Subscale Aerial Target

SASG/RT

BQM-167A

BQM-167A (AFSAT)

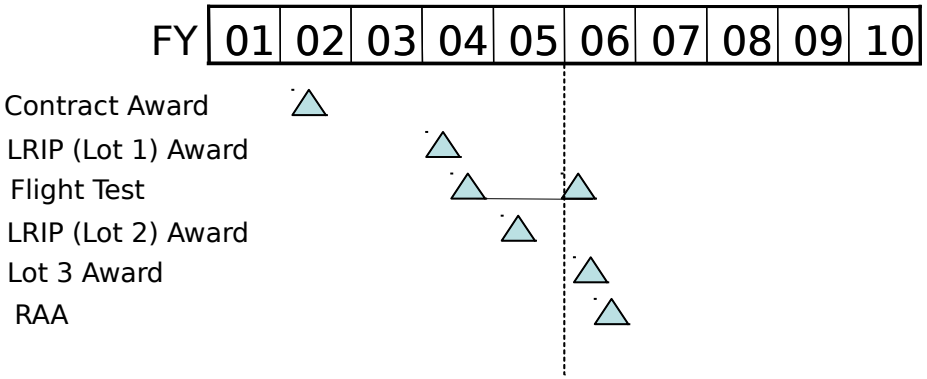
Key Performance Parameters

	Threshold/Objective
- Payload Weight (lbs)	
Total	300/500
Internal	100/350
- Endurance/Mission Time (Min)	
Total	60/75
Mil Power	30 of 60 @ 15k ft/45 of 75 @ 50
- Airspeed	
Minimum	250KCAS/200KCAS
Maximum	0.90M/1.5M
- Formation Flights	2, 3, and 4 targets

Description

- Assures warfighters that weapon systems perform
  adequately against threat-representative targets
  -- Satisfies Public law Title 10 “Live Fire/Lethality”
  developmental/operational test requirements
  -- Validates operational missile/weapon system effectiveness, fighter OFP updates, etc.
  -- Subsonic, relatively heavy-payload capability
- Meets USAF, Army, Navy, allies’ test requirements

Schedule



BQM-167A Schedule

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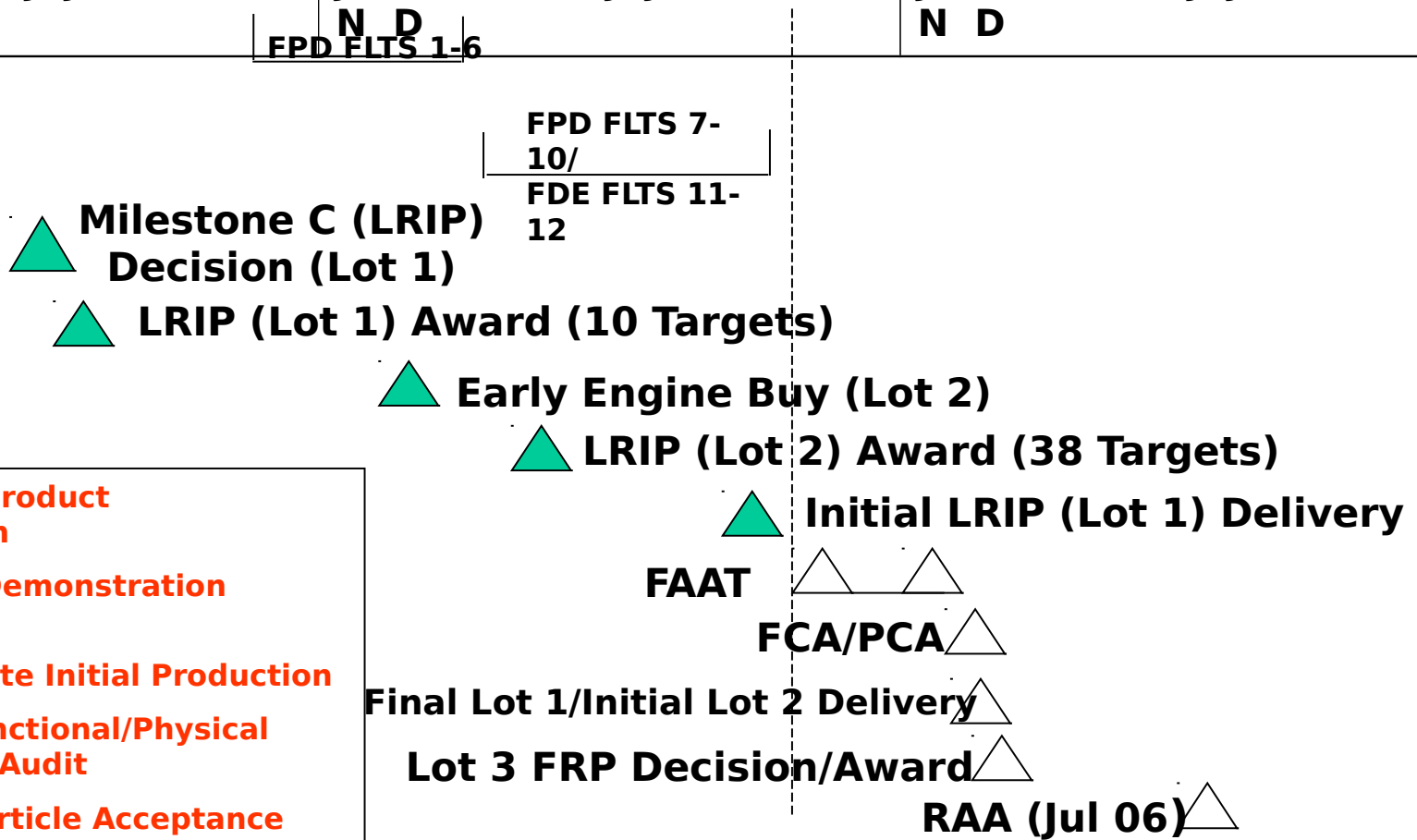
2004	2005	2006
J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D


FPD FLTS 1-6
FPD FLTS 7-10/
FDE FLTS 11-12
Milestone C (LRIP) Decision (Lot 1)
LRIP (Lot 1) Award (10 Targets)
Early Engine Buy (Lot 2)
LRIP (Lot 2) Award (38 Targets)
Initial LRIP (Lot 1) Delivery
FAAT
FCA/PCA
Final Lot 1/Initial Lot 2 Delivery
Lot 3 FRP Decision/Award
RAA (Jul 06)

FPD = Flight Product Demonstration

FDE = Flight Demonstration Evaluation

LRIP = Low Rate Initial Production

FCA/PCA = Functional/Physical Configuration Audit

FAAT = First Article Acceptance Test

RAA = Required Assets Available

Flight Demonstration Successes

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- **Speeds: 250 KCAS to 0.9 MACH**
- **Duration: > 60 Minute (4 flights)**
- **Payload: Total 300 lbs (100 lbs internal)**
- **Altitudes: 200’ – 51,000’**
- **Maneuvers: Pitchback, Slice, Weave, Barrel Roll, Split S, 9G Turns**
- **Recovery: Land (5); Water (5)**
- **Successful Target Recovery: 100%**

Subscale Inventory Levels

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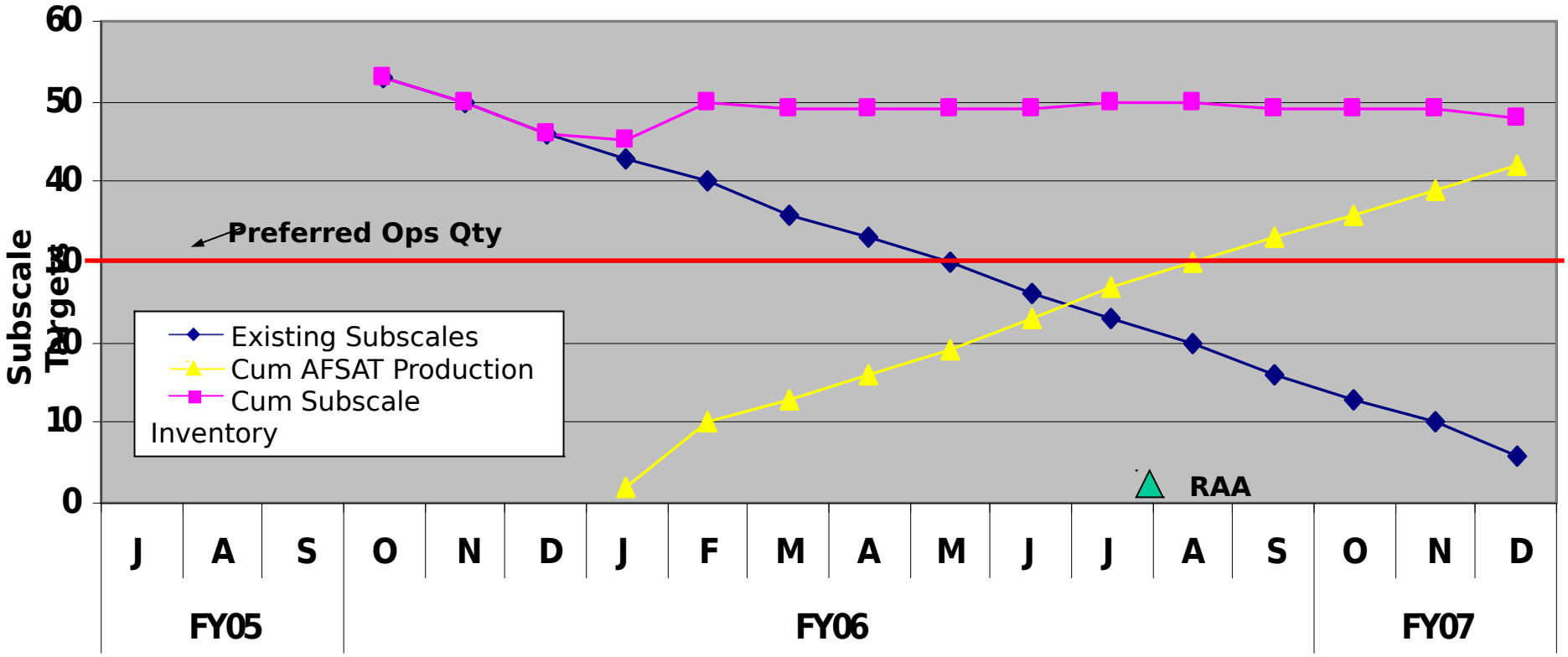

- **Assumes USAF kill rate of 40/yr and all FMS/Navy/Army assets killed in year delivered**
- **AFSAT production schedule based on DD250 date**

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AF Targets Future

SASG/RT

- Monitoring full-scale inventory
- Working to ensure final QF-4 lots supportable
- Pushing for AST contract award in FY08
- Aggressively monitoring subscale inventories
- Must keep AFSAT on track

Questions?